

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-34, drawn to an apparatus and method for turning and/or imaging pages of a document, classified in class 358, subclass 498.
 - II. Claims 35-37, drawn to an apparatus for clamping a page of a supported document, classified in class 270.

Inventions I and II are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the omission of details of the claimed subcombination (invention II) in the combination (invention I) claims is evidence that the combination does not rely upon the specific limitations of the subcombination for its patentability. Also, the subcombination invention II, drawn to an apparatus for clamping (class 270, subclass 58.07: Performing operation on stacks) has separate utility from the combination invention I, drawn to an apparatus for turning pages of a document (class 358 subclass 498: Document Feed).

The examiner has required restriction between combination and subcombination inventions. Where applicant elects a subcombination, and claims thereto are subsequently found allowable, any claim(s) depending from or otherwise requiring all the limitations of the allowable subcombination will be examined for patentability in

accordance with 37 CFR 1.104. See MPEP § 821.04(a). Applicant is advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application.

Restriction for examination purposes as indicated is proper because all these inventions listed in this action are independent or distinct for the reasons given above and there would be a serious search and examination burden if restriction were not required because one or more of the following reasons apply:

- (a) the inventions have acquired a separate status in the art in view of their different classification;
- (b) the inventions have acquired a separate status in the art due to their recognized divergent subject matter;
- (c) the inventions require a different field of search (for example, searching different classes/subclasses or electronic resources, or employing different search queries);
- (d) the prior art applicable to one invention would not likely be applicable to another invention;
- (e) the inventions are likely to raise different non-prior art issues under 35 U.S.C. 101 and/or 35 U.S.C. 112, first paragraph.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a invention to be examined even though the requirement

may be traversed (37 CFR 1.143) **and (ii) identification of the claims encompassing the elected invention.**

The election of an invention may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If claims are added after the election, applicant must indicate which of these claims are readable on the elected invention.

If claims are added after the election, applicant must indicate which of these claims are readable upon the elected invention.

Should applicant traverse on the ground that the inventions are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

During telephone communication with Duane Basch on Thursday, February 28, 2008, a provisional election was made with traverse to prosecute the invention of application 10/658,956, claims 1-34. Affirmation of this election must be made by applicant in replying to this Office action. Claims 35-37 are withdrawn from further

consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Objections

2. Claims 12, 13, 19, 20, 22, and 28 are objected to because of the following informalities:

Claim 12 is objected to because the term "to signal" is ambiguous. The examiner suggests replacing "to signal" with "signaling."

Claim 13 is objected to because the term "said sensing means" lacks proper antecedent basis. The examiner suggests replacing "said sensing means" with "a sensing means."

Claim 19 is objected to because the term "open pages of the" is obscure.

Claim 20 is objected to because the term "and 20 means" is obscure.

Claim 22 is objected to because the term "of a pages" is obscure.

Claim 28 is objected to because the term "the binding of the book" lacks proper antecedent basis. Possible alternatives, which should be consistent throughout the claim, include: "bound document" and "bound document wherein the bound document is a book."

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 8-12, 14, 16, 31 and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Fujioka et al. (US Patent No. 5,610,720), hereinafter referenced as Fujioka.

Regarding claim 1 Fujioka discloses

(FIG. 22, 34; COL. 19, LINE 30-31): base (6) of document table unit (35),

which reads on claimed: "base for supporting the operative assemblies and components of the apparatus;"

(FIG. 22, 34; COL. 19, LINE 3; COL. 19, LINE 9-11): document table (1) with two tables each having a document laying surface (upper surface) of size A4,

which reads on claimed "cradle assembly for supporting the document therein, said cradle assembly being attached to the base and including a first cradle half and a second cradle half;"

(FIG. 22, 34; COL. 19, LINE 11-12; COL. 19, LINE 19-22): slide plate (3) affixed to the underside of each table (1), and up-down plates (5), where the lower surface of each slide plate (3) rests on the taper surface of the associated up-down plate (5),

which reads on claimed "each of the cradle halves further includes a cradle base joined to a book support plate;"

(FIG. 22, 34; COL. 19, LINE 27-35): angle members (7a, 7b) mounted on the underside of each up-down plate (5), fixed axis of rotation angle members (8), elongate slot angle members (9), link plate (10) rotatably supported by angle members (8) and (7b), link arm (11) rotatably supported by angle members (9) and (7a),

which reads on claimed "cradle base joined to a book support plate by a linkage;" (FIG. 32, 33, 34; COL. 22, LINE 23; COL. 22, LINE 30-59): a motor (61) that can be driven to rotate gear (56) in the direction of arrow (b), such that the upper surfaces of right and left tables (1) are consequently moved downward, or in the direction of arrow (c), such that the right and left tables (1) are consequently raised,

which reads on claimed "drive motor operatively coupled to the book support plate;"

(FIG. 22; COL. 19, LINE 35-38): at the same time, the link plate (10) and link arm (11) are smoothly slidable relative to the angle members (7a), (7b) and (9) in the right-and-left direction,

which reads on claimed "operation of the drive motor displaces the book support plate in an arcuate manner relative to the cradle base;"

(FIG. 22, 34; COL. 19, LINE 53-55): a back support sheet (14) made of rubber or similar elastic material connects the ends of the two up-down plates (5)

which reads on claimed "support plates of the first and second cradle halves are joined by a flexible web of material;" and

(FIG. 1, 34; COL. 7, LINE 38-43): Turn the Page Scanner (TPS),

which reads on claimed "page turning assembly for moving the pages to be viewed in seriatim."

Regarding claim 8 Fujioka discloses everything claimed as applied above (see claim 1); in addition, Fujioka discloses

(FIG. 1; COL. 7, LINE 47-48): charge coupled device (CCD) image sensor (101)

which reads on claimed "optical assembly to permit viewing of open pages of the document."

Regarding claim 9 Fujioka discloses everything claimed as applied above (see claim 8); in addition, Fujioka discloses

(FIG. 1; COL. 7, LINE 47-48; COL. 7, LINE 66-67): charge coupled device (CCD) image sensor (101) and frame memory (104) capable of accommodating a single page of size A3,

which reads on claimed "optical assembly further includes a camera suitable for acquiring an image of at least one open page of the document;" and

(FIG. 1; COL. 8, LINE 33-35): laser diode (LD) (105) emits a laser beam to scan a photoconductive element, thereby forming a latent image thereon,

which reads on claimed "display, connected to receive an output of the camera, where the image may be viewed."

Regarding claim 10, Fujioka discloses everything claimed as applied above (see claim 1); in addition, Fujioka discloses

(FIG. 1; COL. 7, LINE 47-48): charge coupled device (CCD) image sensor (101),

which reads on claimed "camera;"

(COL. 9, LINE 25-27): the scanner is provided with a fluorescent lamp, or linear light source, for illumination

which reads on claimed "lighting directed to illuminate open pages of the document;" and

(COL. 14, LINE 42-49): determination of the valid effective image range of the page surface of the spread book,

which reads on claimed "sensing means to detect the location of the open pages of the document relative to a field of view and focal plane of the camera."

Regarding claim 11, Fujioka discloses everything claimed as applied above (see claim 10); in addition, Fujioka discloses

(COL. 14, LINE 42-49): detection of the edge of the spread page of a book on the basis of information read by CCD image sensor (101),

which reads on claimed "sensing means to detect the location of the open pages of the document is further employed to indicate the boundary of at least one edge of a page;" and

(FIG. 1; COL. 9, LINE 65-66): the image processing unit (IPU) (103) executes image processing including trimming,

which reads on claimed "signal from said sensor is employed to automatically control cropping of an image produced by said camera."

Regarding claim 12, Fujioka discloses everything claimed as applied above (see claim 11); in addition, Fujioka discloses

(COL. 10, LINE 57-59): quantities of light are controlled to a predetermined adequate quantity by feed back control

which reads on claimed "controller for controlling the operation of the apparatus in accordance with pre-programmed instructions;" and
(COL. 14, LINE 42-49): detection of the edge of the spread page of a book on the basis of information read by CCD image sensor (101) and, by using the edge position as a reference, determination of the valid effective image range of the page surface of the spread book, thereby obtaining a valid image range suitable for inputting and printing an image without regard to the displacement of the edge of the document,

which reads on claimed "sensing means to detect the location of the open pages of the document is capable of sensing a material extending beyond a page edge, and to signal the controller in response to the sensing of the material, thereby causing the controller to alter an operational cycle of the apparatus."

Regarding claim 14, Fujioka discloses everything claimed as applied above (see claim 10); in addition, Fujioka discloses

(COL. 9, LINE 27-28): a lens is used to converge reflections,

which reads on claimed "optical assembly further comprises at least one mirror, located in an optical path between an open page and the camera, to direct an image of the open page to the camera."

Regarding claim 16, Fujioka discloses everything claimed as applied above (see claim 1); in addition, Fujioka discloses

(FIG. 23, COL. 19, LINE 25-27): size stop (27) fixes the associated slide plate (3) and up-down plate (5) relative to each other,

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which reads on claimed "page position adjustment means including at least one positioning means operatively joined to at least one half of the cradle assembly, wherein the operation of the positioning means translates the cradle assembly, and the document held therein."

Regarding claim 31

Fujioka (FIG 22, 34 COL 19 LINE 3 & 9-11) discloses: document table (1) with two tables each having a document laying surface (upper surface) of size A4,

which reads on claimed: "first cradle half and a second cradle half;"

(FIG 22, 34 COL 19 LINE 11-12 & 19-22) discloses: slide plate (3) affixed to the underside of each table (1), and up-down plates (5), where the lower surface of each slide plate (3) rests on the taper surface of the associated up-down plate (5),

which reads on claimed: "each of the cradle halves further include a cradle base joined to a book support plate;"

(FIG 22 COL 19 LINE 27-35) discloses: angle members (7a, 7b) mounted on the underside of each up-down plate (5), fixed axis of rotation angle members (8), elongate slot angle members (9), link plate (10) rotatably supported by angle members (8) and (7b), link arm (11) rotatably supported by angle members (9) and (7a),

which reads on claimed: "cradle base joined to a book support plate by a linkage;"

(FIG 32, 33, 34 COL 22 LINE 23 & 30-59) discloses: a motor (61) that can be driven to rotate gear (56) in the direction of arrow (b), such that the upper surfaces of right and

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left tables (1) are consequently moved downward, or in the direction of arrow (c), such that the right and left tables (1) are consequently raised,

which reads on claimed: "drive motor, operatively coupled to the book support plates;"

(FIG 22 COL 19 LINE 35-38) discloses: at the same time, the link plate (10) and link arm (11) are smoothly slidable relative to the angle members (7a), (7b) and (9) in the right-and-left direction,

which reads on claimed: "operation of the drive motor displaces the book support plates in an arcuate manner relative to the cradle base;"

(FIG 22, 34 COL 19 LINE 53-55) discloses: a back support sheet (14) made of rubber or similar elastic material connects the ends of the two up-down plates (5),

which reads on claimed: "support plates of the first and second cradle halves are joined by a flexible web of material."

Regarding claim 34

Fujioka discloses everything claimed as applied above (see claim 31); in addition,

Fujioka (FIG 23 COL 19 LINE 25-27) discloses: size stop (27) fixes the associated slide plate (3) and up-down plate (5) relative to each other,

which reads on claimed: "page position adjustment means, said page position adjustment means including at least one positioning motor operatively joined to at least one half of the cradle assembly, wherein the operation of the positioning motor translates the cradle assembly, and the document held therein, in a substantially horizontal direction."

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2-7, 13, 15, 18-30, and 32-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujioka, in view of Mandel et al. (US Patent No. 6,574,014), hereinafter referenced as Mandel.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujioka, in view of Turner et al. (US Patent No. 5,612,791), hereinafter referenced as Turner.

Regarding claim 2, Fujioka discloses everything claimed as applied above (see claim 1); however, Fujioka fails to disclose at least one cover clamp for each cradle half. However, the examiner maintains that it was well known in the art, at the time in which the invention was made, to include at least one cover clamp for each cradle half, as taught by Mandel. In a similar field of endeavor, Mandel discloses (FIG. 1, 4; COL. 7, LINE 58; COL. 8, LINE 62): a book side clamping system (50) with two actuated book side edge clamps, **for the purpose of** (COL. 3, LINE 53-55): clamping the book pages during imaging to keep them from moving;

which reads on claimed "each cradle half further comprises at least one cover clamp."

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify Fujioka by specifically including at least one cover clamp for each cradle half, as taught by Mandel, for the purpose of clamping the book pages during imaging to keep them from moving.

Regarding claim 3, Fujioka discloses everything claimed as applied above (see claim 1); however, Fujioka fails to disclose a pivotable and translatable vacuum head. However, the examiner maintains that it was well known in the art, at the time in which the invention was made, to include a pivotable and translatable vacuum head, as taught by Mandel. In a similar field of endeavor, Mandel discloses (COL. 4, LINE 15-23): a vacuum head which is pivotally mounted on an elongated pivoted arm, said elongated pivoted arm moving from one side of the book towards the other side of the book, **for the purpose of** (COL. 4, LINE 9-12): providing a method of book page turning in which the individual pages of a book which is being held at least partially open are sequentially automatically turned over;

which reads on claimed "page turning assembly further comprises a pivotable and translatable vacuum head for attaching to an open page and turning the separated open page."

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify Fujioka by specifically including a pivotable and translatable vacuum head, as taught by Mandel, for the purpose of providing a method

of book page turning in which the individual pages of a book which is being held at least partially open are sequentially automatically turned over.

Regarding claim 4, Fujioka in view of Mandel discloses everything claimed as applied above (see claim 3); however, Fujioka fails to disclose a vacuum head pivoted once in contact with the open page. However, the examiner maintains that it was well known in the art, at the time in which the invention was made, to include a vacuum head pivoted once in contact with the open page, as taught by Mandel. In a similar field of endeavor, Mandel discloses

(FIG. 1, 4; COL. 8, LINE 24-28): a vacuum head system (22) on an articulating (pivotal) arm (24) for single page acquiring and turning over to the other side of the book,

for the purpose of (COL. 8, LINE 27-28): single page acquiring and turning over;

which reads on claimed "pivotal vacuum head is pivoted once in contact with the open page so as to assist in the separation of the open page from a plurality of adjacent pages."

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify Fujioka by specifically including a vacuum head pivoted once in contact with the open page, as taught by Mandel, for the purpose of single page acquiring and turning over.

Regarding claim 5, Fujioka in view of Mandel discloses everything claimed as applied above (see claim 4); however, Fujioka fails to disclose the angle at which the vacuum head is pivoted is variable in accordance with the type of paper stock used for the page. However, the examiner maintains that it was well known in the art, at the time

in which the invention was made, to vary the angle at which the vacuum head is pivoted in accordance with the type of paper stock used for the page, as taught by Mandel. In a similar field of endeavor, Mandel discloses

(COL. 4, LINE 43-47): the pivot axis for the vacuum head is offset from the centerline of the elongated pivotal arm so that individual pages are not put in substantial tension when bending them during page separation,

for the purpose of (COL. 4, LINE 45-47): not putting individual pages in substantial tension when bending them during page separation;

which reads on claimed "angle at which the pivotable vacuum head is pivoted so as to assist in the separation of the open page is variable in accordance with the type of paper stock used for the page."

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify Fujioka by specifically varying the angle at which the vacuum head is pivoted in accordance with the type of paper stock used for the page, as taught by Mandel, for the purpose of not putting individual pages in substantial tension when bending them during page separation.

Regarding claim 6, Fujioka in view of Mandel discloses everything claimed as applied above (see claim 3); however, Fujioka fails to disclose a page fluffer. However, the examiner maintains that it was well known in the art, at the time in which the invention was made, to include a page fluffer, as taught by Mandel. In a similar field of endeavor, Mandel

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(COL 9 LINE 48-51) discloses: a fluffer system to aid in the initial acquisition and separation of the pages,

for the purpose of (COL 9 LINE 50-51): aiding in the initial acquisition and separation of the pages;

which reads on claimed: "page turning assembly further comprises a page fluffer for separating an open page from an adjacent page."

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify Fujioka by specifically including a page fluffer, as taught by Mandel, for the purpose of aiding in the initial acquisition and separation of the pages.

Regarding claim 7, Fujioka discloses everything claimed as applied above (see claim 1); however, Fujioka fails to disclose an air knife. However, the examiner maintains that it was well known in the art, at the time in which the invention was made, to include an air knife, as taught by Mandel. In a similar field of endeavor, Mandel (COL 9 LINE 44-47) discloses: an air knife to aid in separation of the underlying pages after a sheet edge has been initially bent up,

for the purpose of (COL 9 LINE 46-47): aiding in separation of underlying pages;

which reads on claimed: "page turning assembly further comprises an air knife to separate a top page from adjacent pages so as to avoid turning of multiple pages at one time."

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify Fujioka by specifically including an air knife, as taught by Mandel, for the purpose of aiding in separation of underlying pages.

Regarding claim 13, Fujioka in view of Mandel discloses everything claimed as applied above (see claim 3); in addition, Fujioka discloses (COL. 10, LINE 57-59): quantities of light are controlled to a predetermined adequate quantity by feed back control,

which reads on claimed "controller for controlling the operation of the apparatus in accordance with pre-programmed instructions."

Additionally, Fujioka discloses (FIG. 1; COL. 9, LINE 65-67 thru COL. 10, LINE 1): image processing unit (IPU) (103) executes image processing including detection of document size, position and density.

However, Fujioka fails to disclose sensing the opacity of the page acquired by the vacuum head.

However, the examiner maintains that it was well known in the art, at the time in which the invention was made, to include sensing the opacity of the page acquired by the vacuum head, as taught by Mandel. In a similar field of endeavor, Mandel discloses (COL 4 LINE 5-6 & COL 5 LINE 42-43): positive single page acquisition, where individual book page acquisition member is a vacuum head,

for the purpose of (COL 4 LINE 5-6): positive single page acquisition;

which reads on claimed "sensing means to detect the location of the open pages is capable of sensing the opacity of the page acquired by the vacuum head and

providing a signal indicating the opacity to the controller, wherein the controller determines if multiple pages have been acquired by the vacuum head as a function of the opacity signal."

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify Fujioka by specifically including sensing the opacity of the page acquired by the vacuum head, as taught by Mandel, for the purpose of positive single page acquisition.

Regarding claim 15, Fujioka discloses everything claimed as applied above (see claim 1); however, Fujioka fails to disclose page securing and flattening means including a first page clamp and a second page clamp. However, the examiner maintains that it was well known in the art, at the time at which the invention was made, to include page securing and flattening means including a first page clamp and a second page clamp, as taught by Mandel. In a similar field of endeavor, Mandel (FIG 1 COL 8 LINE 61-63 & COL 3 LINE 40-45) discloses: flattening system (40) may be coordinated with a book side clamping system (50), comprising side edge clamps (51), (52), with clamping after the flattening operation and before imaging, **for the purpose of** (COL 7 LINE 50-53): sequential flattening and holding the pages of a book flatter for imaging after they are turned over, irrespectively of how they are turned over;

which reads on claimed: "page securing and flattening means including a first page clamp and a second page clamp, each clamp being retractable prior to page turning and deployable prior to page imaging."

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify Fujioka by specifically including page securing and flattening means including a first page clamp and a second page clamp, as taught by Mandel, for the purpose of sequential flattening and holding the pages of a book flatter for imaging after they are turned over, irrespectively of how they are turned over.

Regarding claim 17, Fujioka discloses everything claimed as applied above (see claim 1); however, Fujioka fails to disclose a plurality of converging air jets. However, the examiner maintains that it was well known in the art, at the time at which the invention was made, to include a plurality of converging air jets, as taught by Turner. In a similar field of endeavor, Turner

(FIG 4 COL 5 LINE 8-16) discloses: page turning assembly (68) includes air manifold (70) with a series of air nozzles directing air jets toward the book (6),

for the purpose of (COL 1 LINE 11-14): turning pages, urging pages against an imager, and releasing the pages from the imager;

which reads on claimed: "plurality of converging air jets, positioned adjacent and above an open page so as to cause the page to remain in a fixed and flattened position when air is directed toward the page through said air jets."

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify Fujioka by specifically including a plurality of converging air jets, as taught by Turner, for the purpose of turning pages, urging pages against an imager, and releasing the pages from the imager.

Regarding claim 18

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Fujioka (FIG 22, 34 COL 19 LINE 30-31) discloses: base (6) of document table unit (35),

which reads on claimed: "base for supporting the operative assemblies and components of the apparatus;"

(FIG 22, 34 COL 19 LINE 3 & 9-11) discloses: document table (1) with two tables each having a document laying surface (upper surface) of size A4,

which reads on claimed: "cradle assembly having a first cradle half and a second cradle half;"

(FIG 1, 34 COL 7 LINE 38-43) discloses: Turn the Page Scanner (TPS),

which reads on claimed: "page turning assembly for presenting the pages to be imaged seriatim;"

Fujioka fails to disclose a pivotable and translatable vacuum head. However, the examiner maintains that it was well known in the art, at the time in which the invention was made, to include a pivotable and translatable vacuum head, as taught by Mandel. In a similar field of endeavor,

Mandel (COL 4 LINE 15-23) discloses: a vacuum head which is pivotally mounted on an elongated pivoted arm, said elongated pivoted arm moving from one side of the book towards the other side of the book,

for the purpose of (COL 4 LINE 9-12): providing a method of book page turning in which the individual pages of a book which is being held at least partially open are sequentially automatically turned over;

which reads on claimed: "page turning assembly including a pivotable and translatable vacuum head for attaching to a page and turning the page."

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify Fujioka by specifically including a pivotable and translatable vacuum head, as taught by Mandel, for the purpose of providing a method of book page turning in which the individual pages of a book which is being held at least partially open are sequentially automatically turned over.

Fujioka (FIG 22, 34 COL 19 LINE 11-12 & 19-22) discloses: slide plate (3) affixed to the underside of each table (1), and up-down plates (5), where the lower surface of each slide plate (3) rests on the taper surface of the associated up-down plate (5),

which reads on claimed: "each of the cradle halves of the cradle assembly comprises a cradle base joined to a book support plate;"

(FIG 22 COL 19 LINE 27-35) discloses: angle members (7a, 7b) mounted on the underside of each up-down plate (5), fixed axis of rotation angle members (8), elongate slot angle members (9), link plate (10) rotatably supported by angle members (8) and (7b), link arm (11) rotatably supported by angle members (9) and (7a),

which reads on claimed: "a cradle base joined to a book support plate by a linkage;"

Fujioka fails to disclose a clamp for each cradle half. However, the examiner maintains that it was well known in the art, at the time in which the invention was made, to include a clamp for each cradle half, as taught by Mandel. In a similar field of endeavor,

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Mandel (FIG 1, 4 COL 7 LINE 58 & COL 8 LINE 62) discloses: book side clamping system (50) with two actuated book side edge clamps,

for the purpose of (COL 3 LINE 53-55): clamping the book pages during imaging to keep them from moving;

which reads on claimed: "each cradle half further having a clamp."

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify Fujioka by specifically including a clamp for each cradle half, as taught by Mandel, for the purpose of clamping the book pages during imaging to keep them from moving.

Fujioka (FIG 32, 33, 34 COL 22 LINE 23 & 30-59) discloses: a motor (61) that can be driven to rotate gear (56) in the direction of arrow (b), such that the upper surfaces of right and left tables (1) are consequently moved downward, or in the direction of arrow (c), such that the right and left tables (1) are consequently raised,

which reads on claimed: "drive motor suitably operatively coupled to the book support plate;"

(FIG 22 COL 19 LINE 35-38) discloses: at the same time, the link plate (10) and link arm (11) are smoothly slidable relative to the angle members (7a), (7b) and (9) in the right-and-left direction,

which reads on claimed: "operation of the drive motor displaces the book support plate in an arcuate manner relative to the cradle base;"

(FIG 22, 34 COL 19 LINE 53-55) discloses: a back support sheet (14) made of rubber or similar elastic material connects the ends of the two up-down plates (5),

which reads on claimed: "support plates of the first and second cradle halves are joined by a flexible web of material."

Regarding claim 19

Fujioka in view of Mandel discloses everything claimed as applied above (see claim 18); in addition, Fujioka (FIG 1 COL 7 LINE 47-48) discloses: charge coupled device (CCD) image sensor (101),

which reads on claimed: "optical assembly comprising at least one camera;"
(COL 9 LINE 25-27) discloses: the scanner is provided with a fluorescent lamp, or linear light source, for illumination,

which reads on claimed: "lighting directed at the open pages;"
(COL 14 LINE 42-49) discloses: determination of the valid effective image range of the page surface of the spread book,

which reads on claimed: "sensing means to detect the location of open pages relative to the field of view and focal plane of the at least one camera;"

(COL 9 LINE 27-28) discloses: a lens is used to converge reflections,

which reads on claimed: "at least one mirror to direct the images of the left open page and the right open page to the at least one camera during an imaging cycle."

Regarding claim 20

Fujioka in view of Mandel discloses everything claimed as applied above (see claim 18); however, Fujioka fails to disclose page securing means having a first page clamp and a second page clamp. However, the examiner maintains that it was well known in the art,

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at the time in which the invention was made, to include page securing means having a first page clamp and a second page clamp, as taught by Mandel. In a similar field of endeavor,

Mandel (FIG 1 COL 8 LINE 61-63 & COL 3 LINE 40-45) discloses: flattening system (40) may be coordinated with a book side clamping system (50), comprising side edge clamps (51), (52), with clamping after the flattening operation and before imaging,

for the purpose of (COL 7 LINE 50-53): sequential flattening and holding the pages of a book flatter for imaging after they are turned over, irrespectively of how they are turned over;

which reads on claimed: "open page securing...means having a first page clamp and a second page clamp, each clamp being retractable prior to page turning and deployable prior to page imaging."

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify Fujioka by specifically including page securing means having a first page clamp and a second page clamp, as taught by Mandel, for the purpose of sequential flattening and holding the pages of a book flatter for imaging after they are turned over, irrespectively of how they are turned over.

Regarding claim 21

Fujioka in view of Mandel discloses everything claimed as applied above (see claim 18); in addition, Fujioka (FIG 23 COL 19 LINE 25-27) discloses: size stop (27) fixes the associated slide plate (3) and up-down plate (5) relative to each other,

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which reads on claimed: "page position adjustment means further comprising at least one motor operatively joined to at least one half of the cradle assembly, in order to translate the cradle assembly and the pages held therein in a substantially horizontal direction."

Regarding claim 22

Fujioka in view of Mandel discloses everything claimed as applied above (see claim 18); in addition, Fujioka (FIG 1 COL 7 LINE 47-48 & COL 9 LINE 65-67 thru COL 10 LINE 1) discloses: charge coupled device (CCD) image sensor (101), and image processing unit (IPU) (103) executes image processing including detection of document size, position and density,

which reads on claimed: "page bifurcation position adjustment means further comprising optical sensing means for sensing the position of the page bifurcation of a pages held within the cradle assemble of the apparatus."

Regarding claim 23

Fujioka in view of Mandel discloses everything claimed as applied above (see claim 18); in addition, Fujioka (COL 14 LINE 42-49) discloses: detection of the edge of the spread page of a book on the basis of information read by CCD image sensor (101),

which reads on claimed: "page edge detection means further comprising optical sensing means for sensing the position of the edge of a page as it is acquired by a vacuum head and turned by a page turning assembly."

Regarding claim 24

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Fujioka in view of Mandel discloses everything claimed as applied above (see claim 18); however, Fujioka fails to disclose a page fluffer. However, the examiner maintains that it was well known in the art, at the time in which the invention was made, to include a page fluffer, as taught by Mandel. In a similar field of endeavor, Mandel (COL 9 LINE 48-51) discloses: a fluffer system to aid in the initial acquisition and separation of pages, **for the purpose of** (COL 9 LINE 50-51): aiding in the initial acquisition and separation of pages;

which reads on claimed: "page turning assembly further comprises a page fluffer for separating a page from adjacent pages."

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify Fujioka by specifically including a page fluffer, as taught by Mandel, for the purpose of aiding in the initial acquisition and separation of pages.

Regarding claim 25

Fujioka (FIG 22, 34 COL 19 LINE 3 & 9-11) discloses: document table (1) with two tables each having a document laying surface (upper surface) of size A4, (FIG 1 COL 7 LINE 47-48) discloses: charge coupled device (CCD) image sensor (101), (COL 14 LINE 42-49) discloses: determination of the valid effective image range of the page surface of the spread book;

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Fujioka fails to disclose a vacuum head. However, the examiner maintains that it was well known in the art, at the time in which the invention was made, to include a vacuum head, as taught by Mandel. In a similar field of endeavor,

Mandel (FIG 1, 4 COL 8 LINE 24-28) discloses: vacuum head system (22) on articulating (pivotal) arm (24) for single page acquiring and turning over to the other side of the book,

for the purpose of (COL 8 LINE 27-28): single page acquiring and turning over;

which reads on claimed: "method of reading a document comprising the steps of securing the document in a cradle assembly, the document being opened to a selected first and second pages; adjusting the position of the document such that at least one of the first and second pages are entirely within the field of view of at least one image acquisition device; holding the at least one page in position for a period of time; displacing at least the outer edge of the second page from contact with subsequent adjacent pages; temporarily placing a vacuum head proximate to at least a portion of the surface of the second page; acquiring the second page with the vacuum head device; turning the second page about its line of contact with the binding of the book until the printed surface of the second page is substantially congruent with the printed surface of the first page; and releasing the second page from the vacuum head."

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify Fujioka by specifically including a vacuum head, as taught by Mandel, for the purpose of single page acquiring and turning over.

Regarding claim 26

Fujioka in view of Mandel discloses everything claimed as applied above (see claim 25); in addition, Fujioka (FIG 1 COL 7 LINE 47-48 & 66-67) discloses: charge coupled device (CCD) image sensor (101) and frame memory (104) capable of accommodating a single page of size A3,

which reads on claimed: "step of acquiring an image of the first page of the document."

Regarding claim 27

Fujioka in view of Mandel discloses everything claimed as applied above (see claim 26); in addition, Fujioka (FIG 1 COL 7 LINE 47-48 & 66-67) discloses: charge coupled device (CCD) image sensor (101) and frame memory (104) capable of accommodating a single page of size A3,

which reads on claimed: "step of acquiring an image of the second page of the document."

Regarding claim 28

Fujioka (FIG 22, 34 COL 19 LINE 3 & 9-11) discloses: document table (1) with two tables each having a document laying surface (upper surface) of size A4, (FIG 1 COL 7 LINE 47-48) discloses: charge coupled device (CCD) image sensor (101);

Fujioka fails to disclose at least one page clamping device. However, the examiner maintains that it was well known in the art, at the time in which the invention was made,

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to include at least one page clamping device, as taught by Mandel. In a similar field of endeavor,

Mandel (FIG 1 COL 8 LINE 61-63 & COL 3 LINE 40-45) discloses: flattening system (40) may be coordinated with a book side clamping system (50), comprising side edge clamps (51), (52), with clamping after the flattening operation and before imaging,

for the purpose of (COL 7 LINE 50-53): sequential flattening and holding the pages of a book flatter for imaging after they are turned over, irrespectively of how they are turned over;

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify Fujioka by specifically including at least one page clamping device, as taught by Mandel, for the purpose of sequential flattening and holding the pages of a book flatter for imaging after they are turned over, irrespectively of how they are turned over.

Fujioka (COL 14 LINE 42-49) discloses: determination of the valid effective image range of the page surface of the spread book;

Fujioka fails to disclose a vacuum head. However, the examiner maintains that it was well known in the art, at the time in which the invention was made, to include a vacuum head, as taught by Mandel. In a similar field of endeavor,

Mandel (FIG 1, 4 COL 8 LINE 24-28) discloses: vacuum head system (22) on articulating (pivotal) arm (24) for single page acquiring and turning over to the other side of the book,

for the purpose of (COL 8 LINE 27-28): single page acquiring and turning over;

which reads on claimed: " method of reading a document comprising the steps of securing the document in a cradle assembly, the document being opened to a selected first and second pages; flattening at least one of the first and second pages of the document, securing at least one of the first and second pages of the document with at least one page clamping device such that said at least one page is within the field of view and focal plane of at least one image acquisition device; adjusting the position of the document such that at least one of the first and second pages are entirely within the field of view of at least one image acquisition device; holding the at least one page in position for a period of time; releasing the page clamping device; displacing at least the outer edge of the second page from contact with subsequent adjacent pages; temporarily placing a vacuum head proximate to at least a portion of the surface of the second page; acquiring the second page with the vacuum head device; turning the second page about its line of contact with the binding of the book until the printed surface of the second page is substantially congruent with the printed surface of the first page; and releasing the second page from the vacuum head."

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify Fujioka by specifically including a vacuum head, as taught by Mandel, for the purpose of single page acquiring and turning over.

Regarding claim 29

Fujioka in view of Mandel discloses everything claimed as applied above (see claim 28); in addition, Fujioka (FIG 1 COL 7 LINE 47-48 & 66-67) discloses: charge coupled

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device (CCD) image sensor (101) and frame memory (104) capable of accommodating a single page of size A3,

which reads on claimed: "step of acquiring an image of the first page of the document."

Regarding claim 30

Fujioka in view of Mandel discloses everything claimed as applied above (see claim 28); in addition, Fujioka (FIG 1 COL 7 LINE 47-48 & 66-67) discloses: charge coupled device (CCD) image sensor (101) and frame memory (104) capable of accommodating a single page of size A3,

which reads on claimed: "step of acquiring an image of the second page of the document."

Regarding claim 32

Fujioka discloses everything claimed as applied above (see claim 31); however, Fujioka fails to disclose page securing and flattening means including a first page clamp and a second page clamp. However, the examiner maintains that it was well known in the art, at the time in which the invention was made, to include page securing and flattening means including a first page clamp and a second page clamp, as taught by Mandel. In a similar field of endeavor,

Mandel (FIG 1 COL 8 LINE 61-63 & COL 3 LINE 40-45) discloses: flattening system (40) may be coordinated with a book side clamping system (50), comprising side edge clamps (51), (52), with clamping after the flattening operation and before imaging,

for the purpose of (COL 7 LINE 50-53): sequential flattening and holding the pages of a book flatter for imaging after they are turned over, irrespectively of how they are turned over;

which reads on claimed: "open page securing and flattening means, said page securing and flattening means including a first page clamp and a second page clamp, each clamp being retractable during turning of document pages."

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify Fujioka by specifically including page securing and flattening means including a first page clamp and a second page clamp, as taught by Mandel, for the purpose of sequential flattening and holding the pages of a book flatter for imaging after they are turned over, irrespectively of how they are turned over.

Regarding claim 33

Fujioka discloses everything claimed as applied above (see claim 31); however, Fujioka fails to disclose at least one cover clamp for each cradle half. However, the examiner maintains that it was well known in the art, at the time in which the invention was made, to include at least one cover clamp for each cradle half, as taught by Mandel. In a similar field of endeavor,

Mandel (FIG 1, 4 COL 7 LINE 58 & COL 8 LINE 62) discloses: book side clamping system (50) with two actuated book side edge clamps,

for the purpose of (COL 3 LINE 53-55): clamping the book pages during imaging to keep them from moving;

which reads on claimed: "each cradle half further comprises at least one book cover clamp."

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify Fujioka by specifically including at least one cover clamp for each cradle half, as taught by Mandel, for the purpose of clamping the book pages during imaging to keep them from moving.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mariama Orange whose telephone number is (571) 270-3577. The examiner can normally be reached on 9AM-5PM ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Twyler Haskins can be reached on (571) 272-7406. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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